



10589996 - GAU: 1651

PTO/SB/08A (08-03)

Approved for use through 7/31/2006. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/589,996
Filing Date	August 18, 2006
First Named Inventor	Henley et al.
Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	63611A

Sheet 1 of 3

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date (MM-DD-YYYY)	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US4520124	05/28/1985	Abe et al.	
		US4743577	05/10/1988	Schroeder et al.	
		US5194154	03/16/1993	Moyer et al.	
		US5173349	12/22/1992	Yavuz et al.	
		US5098455	03/24/1992	Doty et al.	
		US5198007	03/30/1993	Moyer et al.	
		US5250490	10/05/1993	Ritscher et al.	
		US5340516	08/23/1994	Yavuz et al.	
		US5698483	12/16/1997	Ong et al.	
		US5939354	08/17/1999	Golden	
		US5334570	08/02/1994	Beauseigneur et al.	
		US6306335	10/23/2001	Wallin et al.	
		US6596665	07/22/2003	Wallin et al.	
		US6669751B1	12/30/2003	Ohno et al.	
		US20010038810	11/08/2001	Wallin et al.	
		US20040020359A1	11/08/2001	Koermer et al.	

Examiner Signature	Date Considered
-----------------------	--------------------

\*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> Form Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P. O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.H./

Approved for use through 7/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

(Use as many sheets as necessary)

**Complete if Known**

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number Filing Date First Names Inventor Art Unit Examiner Name Attorney Docket Number	10/589,996 August 18, 2006 Henley et al. Unknown Unknown 63611A
Sheet	2	63611A	3		

## FOREIGN PATENT DOCUMENTS

[illegible]

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

\*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>Form Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P. O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.H./

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

**Complete if Known**

(Use as many sheets as necessary)

Sheet	2	63611A	3
-------	---	--------	---

Application Number	10/589,996
Filing Date	August 18, 2006
First Names Inventor	Henley et al.
Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	63611A

[illegible]

**Examiner  
Signature**

Date  
Considered

\*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>Form Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P. O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.H./

PTO/SB/08A (08-03)

Approved for use through 7/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

*Complete if Known*

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE STATEMENT  
BY APPLICANT***(Use as many sheets as necessary)*

Sheet	3	63611A	3	Application Number	10/589,996
				Filing Date	August 18, 2006
				First Named Inventor	Henley et al.
				Art Unit	Unknown
				Examiner Name	Unknown
				Attorney Docket Number	63611A

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
		G.I. TAYLOR, <i>Journal of Fluid Mechanics</i> , 10, 161-165, (1960).	<input type="checkbox"/>
		AUSSILOUS et al, <i>Physics of Fluids</i> , 12(10), 2367-2371 (2001)	<input type="checkbox"/>
		F.P. BRETHERTON, <i>Journal of Fluid Mechanics</i> , 10, 166-188, (1960)	<input type="checkbox"/>
		Kolb, <i>Chemical Engineering Science</i> , 46(9) 2181-2195, (1991)	<input type="checkbox"/>
		THULASIDAS, <i>Chemical Engineering Science</i> 50(2), 183-199, (1995)	<input type="checkbox"/>
		STEGEMAN D, et al., <i>Industrial &amp; Engineering Chemistry Research</i> , 35(2), 378-385 (1996)	<input type="checkbox"/>
		ILIUTA I, THYRION F, et al., <i>Chemical Engineering Science</i> , 51, 4579-4593 (1996)	<input type="checkbox"/>
		KOVALENKO, et al., <i>Journal of Molecular Catalysis A: Chemical</i> , 182-183, 73-80, (2002)	<input type="checkbox"/>
		M. KREUTZER, <i>Hydrodynamics of Taylor Flow in Capillaries and Monolith Reactors</i> , PH.D. Thesis, page 75 and 76, Delft University Press, Netherlands, (2003)	<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>

Examiner Signature	/Susan Hanley/ (07/27/2009)	Date Considered	
-----------------------	-----------------------------	--------------------	--

\*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (option). <sup>2</sup>Applicant is to place a check mark here in English language Translation is attached.

This collection of information is required 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P. O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.H./